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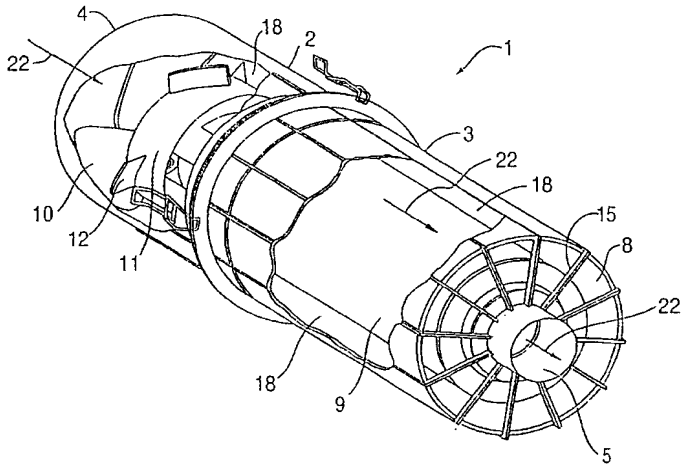
(54) Title: POWERED AIR CLEANING SYSTEM AND AIR CLEANING METHOD



(57) Abstract: A powered air cleaning system (31) and air cleaning method are disclosed. The system comprises a flow path (22) extending through the system from an air inlet (4) to a clean air outlet (5). A motor-driven fan (24) located along the flow path draws particulate debris laden air into the inlet and rotates it about an axis (A-A) to form a rotating flow that stratifies the debris laden air with the heaviest particles in the outermost orbits of the rotating glow. An ejector port (33) is provided for ejecting particulate debris laden air from the stratified rotating flow in the system to the environment. An air filter (9) located within the rotating glow and across the flow path upstream of the outlet filters air from the innermost orbits of the stratified rotating flow. The motor-driven fan is operated to maintain a positive air pressure in the system on the filter even with cyclic air flow demands so that the rotating air flow continually sweeps the outside surface of the air filter to minimize buildup of debris on the filter.

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